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A PROCESS MODEL

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Abstract

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MAJOR INFLUENCES ON EMPLOYEE ATTENDANCE: A PROCESS MODEL

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Each year, it is estimated that over 400 million work days are lost in the United States due to employee absenteeism, or about 5.1 days lost per employee (Yolles, Carone, & Krinsky, 1975). In many industries, daily blue-collar absenteeism runs as high as 10% to 20% of the workforce (Lawler, 1971). A recent study by Mirvis and Lawler (1977) estimates the cost of absenteeism among non-managerial personnel to be about $66 per day per employee; this estimate includes both direct salary and fringe benefit costs, as well as costs associated with temporary replacement and estimated loss of profit. While such figures are admittedly crude, combining the estimated total days lost with the costs associated with absenteeism yields an estimated annual cost of absenteeism in the U.S. of $26.4 billion! Even taking the more conservative minimum wage rate yields an estimated annual cost of $8.5 billion. Clearly, the phenomenon of employee absenteeism is an important area for empirical research and management concern.

In the study of employee withdrawal behavior, most researchers have focused primarily on turnover and treated absenteeism with subsidiary interest (see, e.g., Lyons, 1972; Burke & Wilcox, 1972). Moreover, it is often stated in the literature that turnover and absenteeism share common antecedents and hence can be treated with similar techniques. An earlier review of the available evidence (Porter & Steers, 1973) argued against this assumption, noting that absenteeism as a

category of behavior differs in three important respects from turnover: 1) the negative consequences associated with absenteeism for the employee are usually much less than those associated with turnover; 2) absenteeism is more likely to be a spontaneous and relatively easy decision, while the act of termination is typically more carefully considered over time; and 3) absenteeism oftentimes represents a substitute form of behavior for turnover, particularly when alternative forms of employment are unavailable. In addition, of the 22 studies cited by Porter and Steers (1973) which examined influences on both turnover and absenteeism, only six found significant relations in the same direction between the factors under study and both turnover and absenteeism. In other words, sufficient reason exists to justify the study of employee absenteeism in its own right, instead of as an analogue of turnover.

A review of existing research indicates that investigators of employee absenteeism have typically examined bivariate correlations between a set of variables and subsequent absenteeism (Muchinsky, 1977; Nicholson, Brown & Chadwick-Jones, 1976; Porter & Steers, 1973; Vroom, 1964). Little in the way of comprehensive theory-building can be found, with the possible exception of Gibson (1966). Moreover, two basic (and questionable) assumptions permeate the work that has been done to date. First, the current literature largely assumes that job dissatisfaction represents the primary cause of absenteeism. Unfortunately, however, existing research consistently finds only weak support for this hypothesis. Locke (1976), for example, points out that the magnitude of the correlation between dissatisfaction and absenteeism is

generally quite low, seldom surpassing $\underline{r}$ = .40 and typically much lower. Moreover, Nicholson et al. (1976), in their review of 29 such studies, concluded that "at best it seems that job satisfaction and absence from work are tenuously related (p. 734)." Nicholson et al. also observed that the strength of this relationship deteriorates as one moves from group-based studies to individually-based studies. Similar weak findings have been reported earlier (Porter & Steers, 1973; Vroom, 1964). Implicit in these modest findings is the probable existence of additional variables (both personal and organizational) which may serve to moderate or enhance the satisfaction-attendance relationship.

The second major problem to be found in much of the current work on absenteeism is the implicit assumption that employees are generally free to choose whether or not to come to work. As noted by Herman (1973) and others, such is often not the case. In a variety of studies, important situational constraints were found which influenced the attitude-behavior relationship (Herman, 1973; Ilgen & Hollenback, 1977; Morgan & Herman, 1976; Smith, 1977). Hence, there appear to be a variety of situational constraints (e.g., poor health, family responsibilities, transportation problems) that can interfere with free choice in an attendance decision. Thus, a comprehensive model of attendance must include not only job attitudes and other influences on attendance motivation but also situational constraints that inhibit a strong motivation-behavior relationship.

In view of the multitude of narrowly-focused studies of absenteeism but the dearth of conceptual frameworks for integrating

these findings, it appears useful to attempt to identify the major sets of variables that influence attendance behavior and to suggest how such variables fit together into a general model of employee attendance. Toward this end, a model of employee attendance is presented here. This model incorporates both voluntary and involuntary absenteeism and is based on a review of 104 studies of absenteeism (see Rhodes & Steers, Note 6).

In the absence of multivariate longitudinal data, we shall be building our conceptual model largely by fitting together the array of piecemeal findings on the subject. Even so, our model will suggest how these disparate findings can conceivably fit into the model. In doing so, it is hoped that the proposed model will be treated as a series of propositions suitable for testing. In this way, we can move beyond the existing practice of studying absence behavior out of context and toward a more comprehensive and systematic examination of the topic.

THE CONCEPTUAL MODEL

The model proposed here attempts to examine in a systematic and comprehensive fashion the various influences on employee attendance behavior. Briefly stated, it is suggested that an employee's attendance is largely a function of two important variables: 1) an employee's motivation to attend; and 2) an employee's ability to attend. Both of these factors are included in the schematic diagram presented in Figure 1 and each will be discussed separately as it relates to existing research. First, we shall examine the proposed

antecedents of attendance motivation.

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Job Situation, Satisfaction, and Attendance Motivation

A fundamental premise of the model suggested here is that an employee's motivation to come to work represents the primary influence on actual attendance, assuming one has the ability to attend (Herman, 1973; Locke, 1968). Given this, questions must be raised concerning the major influences on attendance motivation. Available evidence indicates that such motivation is determined largely by a combination of: 1) an employee's affective responses to the job situation; and 2) various internal and external pressures to attend (Vroom, 1964; Hackman & Lawler, 1971; Locke, 1976; Porter & Lawler, 1968). In this section, we will examine the relationship between an employee's satisfaction with the job situation and attendance motivation. The second major influence on attendance motivation, pressures to attend, will be dealt with subsequently.

Other things being equal, when an employee enjoys the work environment and the tasks that characterize his or her job situation, we would expect that employee to have a strong desire to come to work (Hackman & Lawler, 1971; Lundquist, 1958; Newman, 1974; Porter & Steers, 1973; Vroom, 1964). Under such circumstances, the work experience would be a pleasurable one. In view of this relationship, our first question concerns the manner in which the job situation affects one's attendance motivation. The job situation (box 1 in Figure 1), as

conceived here, consists of those variables that characterize the nature of the job and the surrounding work environment. Included in the job situation are such variables as: 1) job scope; 2) job level; 3) role stress; 4) work group size; 5) leader style; 6) co-worker relations; and 7) opportunities for advancement. It must be emphasized that we are referring to the general work environment here, not simply the nature of the required tasks. The influence of various aspects of the job situation on job attitudes and absenteeism is well documented. These studies will be briefly summarized here as they relate to the proposed model.

Job scope. An examination of the available research yields a fairly consistent if modest relationship between variations in job scope and absenteeism. In particular, absenteeism has been found to be inversely related to perceived measures of task identity (Hackman & Lawler, 1971), autonomy (Baumgartel & Sobol, 1959; Turner & Lawrence, 1965; Hackman & Lawler, 1971; Fried et al., 1972; Hackman & Oldham, 1976), variety (Hackman & Oldham, 1976), level of responsibility (Baumgartel & Sobol, 1959), participation in decisions affecting employees' immediate jobs (Nicholson et al., 1977), and sense of achievement (Waters & Roach, 1971, 1973). These findings are not entirely unanimous, however (Kilbridge, 1961; Hackman & Oldham, 1976).

When we examine the effects of experimental interventions in job design on absenteeism, the relationship is generally sustained, although exceptions to this trend are found. That is, a wide variety of field experiments found that improving or enriching the nature of an employee's job substantially reduced absenteeism (Locke, Sirota,

& Wolfson, 1976; Oster, Note 5; Beer & Huse, 1972; World of Work Report, 1977; Lawler, Hackman, & Kaufman, 1973; Ford, 1969; Trist et al., 1965; Hackman, Oldham, Janson, & Purdy, 1975; Smith, 1972; Ketchum, Note 4; Copenhaver, 1973; Hautaluoma & Gavin, 1975; Spiegel, 1975). Four other industrial experiments among both blue- and white-collar employees are summarized by Glaser (1976); results consistently show a relationship between enriched jobs and reduced absenteeism. Several other studies did not find such a relationship, however (Davis & Valfer, 1965; King, 1974; Frank & Hackman, 1975; Gomez & Mussie, 1975; Malone, 1975). In contrast to the perceptual studies, however, most experimental studies failed to report both the specific absence measure used and the significance level. Moreover, more than half of these studies failed to use control groups and instead simply reported pre- and post-tests on the experimental group. Hence, we are left with largely hearsay evidence that job enrichment reduced absenteeism. This is unfortunate in view of the potential contribution to an understanding of absenteeism that such experimental studies could make.

What remains to be demonstrated is why increased job scope often leads to improved attendance. According to the proposed model, the basic theoretical rationale behind such findings is that increasing job scope increases the challenge and responsibility experienced by an employee which, in turn, leads to more positive job attitudes (box 4). These attitudes then become translated into an increased desire to participate in what is perceived to be more desirable work activities (box 6). Support for this interpretation can be found in Hackman and Oldham (1976), Indik (1965), and Porter and Lawler (1965).

Job level. A second influence on experienced satisfaction with the job situation and subsequent attendance is one's level in the organizational hierarchy. From the limited research available, it would appear that people who hold higher-level jobs are more satisfied and less likely to be absent than those who hold lower-level positions (Baumgartel & Sobol, 1959; Hrebiniak & Roteman, 1973; Waters & Roach, 1971, 1973; Yolles et al., 1975). However, caution is in order here in interpreting these results. Hrebiniak and Roteman noted that after satisfaction was partialled out of the job level-absenteeism relationship, no significant correlation was found (see also Garrison & Muchinsky, 1977). Hence, it is possible that the more challenging nature of higher-level jobs leads to higher job satisfaction which, in turn, leads to attendance.[1]

Role stress. Recent work on role theory has emphasized the importance of role stress and conflict as an important variable in work behavior. Miles and Perreault (1976), for example, found substantial evidence that role conflict is associated with job-related tension and reduced job satisfaction. Moreover, Hedges (1973) found absenteeism rates to be higher on jobs characterized by high levels of stress (e.g., assemblyline jobs). Finally, several studies have found manifest anxiety to be related to employee absenteeism (Sinha, 1963; Bernardin, 1977; Melbin, 1961; Pocock, Sergean, & Taylor, 1972). To the extent that such anxiety, tension, and subsequent dissatisfaction exist, individuals would probably be less likely to want to come to work and may indeed look for excuses not to come to work (e.g., psychosomatic illness).

Work group size. A number of studies have examined the relationship between variations in the size of the work group and absenteeism. In general, a positive linear relationship has been found between increases in work group size and absenteeism among blue-collar employees (Covner, 1950; Acton Society Trust, 1953; Hewitt & Parfitt, 1953; Argyle, Gardner, & Cioffi, 1958; Revans, 1958; Baumgartel & Sobol, 1959; Indik & Seashore, 1961; Indik, 1965). Three investigations examined blue- and white-collar employees and found no relationship between work group size and absenteeism (Baumgartel & Sobol, 1959; Kerr et al., 1951; Metzner & Mann, 1953). Finally, Ingham (1970) found that increases in the size of the total organization were also associated modestly with increased absenteeism.

One explanation for these findings is that increased work group size leads to lower group cohesiveness, higher task specialization, and poorer communication (Porter & Lawler, 1965; Indik, 1965). As a result, it becomes more difficult to satisfy one's higher-order needs on the job and job attendance becomes less appealing. This explanation may be more relevant for blue-collar employees than white-collar employees, since the latter group generally has more autonomy and control over their jobs and is in a better position to find alternative routes to intrinsic rewards.

Leader style. Another important variable influencing level of satisfaction is the behavior of an employee's superiors. For example, research on leader behavior reviewed by Stogdill (1974) generally confirms that a more considerate leader style facilitates job satisfaction, while a more task-oriented or structured leader style often inhibits

satisfaction.

The relationship between leader style and absenteeism is more tenuous. Only two studies out of ten found a significant inverse relationship between satisfaction with supervisory style and absenteeism (Metzner & Mann, 1953; Smith, 1977). Eight other studies found no such relationship (Hackman & Lawler, 1971; Waters & Roach, 1971, 1973; Newman, 1974; Nicholson et al., 1976; Lundquist, 1958; Garrison & Muchinsky, 1977; Nicholson et al., 1977). Argyle et al. (1958) did find that democratic supervision was related to reduced absenteeism, although supervisory pressure for production did not influence absenteeism. Finally, evidence by Bragg and Andrews (1973), Revans (1958), and Smith and Jones (1968) suggests that more decentralized (i.e., participative) leader control was related to reduced absenteeism, although supervisory pressure for production did not influence absenteeism.

When taken together, these findings indicate that leader behavior has a more immediate impact on affective reactions to the job situation than on absenteeism itself. Hence, it appears that satisfaction represents an intermediate variable in the leader style-absenteeism relationship.

Co-worker relations. Available evidence suggests a similar sequence of relationships for co-worker relations. That is, little evidence exists of a strong or direct association between the nature

of co-worker relations and absenteeism. Only two out of eight studies found a significant relationship between these two variables (Metzner & Mann, 1953; Nicholson et al., 1977). Six other studies did not find this relationship (Lundquist, 1958; Waters & Roach, 1971, 1973; Newman, 1974; Nicholson et al., 1976; Garrison & Muchinsky, 1977). However, co-worker relations have generally been found to be quite strongly related to general job satisfaction which, in turn, has been found to be related to attendance (Vroom, 1964).

Opportunities for advancement. Finally, studies concerning promotional opportunities find little direct relationship between satisfaction with one's rate of promotion and attendance. While Patchen (1960), Smith (1977), and Metzner and Mann (1953) did report a modest relationship, eight other studies among divergent samples did not (Hackman & Lawler, 1971; Waters & Roach, 1971, 1973; Metzner & Mann, 1953; Newman, 1974; Nicholson et al., 1976; Garrison & Muchinsky, 1977; Nicholson et al., 1977). However, research does support the contention that rate of promotion influences employee's affective response to the general job situation (Hackman & Lawler, 1971). Hence it appears suitable to include opportunities as an antecedent variable to satisfaction with the job situation.

When the findings concerning the various job situation variables are compared, it appears that variables which largely relate to job content have a stronger influence on actual absenteeism than those which relate to job context. That is, job content variables were generally found to be consistently related to both satisfaction and absenteeism. In contrast, job context variables, while they were

consistently related to satisfaction, were seldom related to absenteeism. Hence, they would be expected to influence absenteeism only to the extent that they altered one's satisfaction with the job situation. It should be noted, however, that job context variables have been found to be fairly consistent predictors of employee turnover, if not absenteeism (Porter & Steers, 1973).

The Role of Employee Values and Job Expectations

Considerable evidence suggests that the relationship between job situation variables and subsequent satisfaction and attendance motivation is not a direct one (Locke, 1976). Instead, a major influence on the extent to which employees experience satisfaction with the job situation is the values and expectations they have concerning the job (box 2). It has been noted previously that people come to work with differing values and job expectations; that is, they value different features in a job and expect these features to be present to a certain degree in order to maintain membership (Locke, 1976; Porter & Steers, 1973).

To a large extent these values and expectations are influenced by the personal characteristics and backgrounds of the employees (box 3).[2] For example, employees with higher educational levels (e.g., a college degree) may value and expect greater (or at least different) rewards from an organization than those with less education (e.g., a private office, a secretary, a higher salary, greater freedom of action). Support for this contention can be found in Hedges (1973). Moreover, older and more tenured employees often value and expect certain perquisites because of their seniority (Baumgartel & Sobol,

1959; Cooper & Payne, 1965; Nicholson et al., 1976; Nicholson, Brown, & Chadwick-Jones, 1977; Hill & Trist, 1955; Martin, 1971).

Whatever the values and expectations that individuals bring to the job situation, it is important that these factors be largely met for the individual to be satisfied. In this regard, Smith (1972) found that realistic job previews created realtistic job expectations among employees and led to a significant decline in absenteeism. Somewhat relatedly, Stockford (1944) found that absenteeism was higher among a sample of industrial workers whose previous training was not seen as relevant for their current positions than among a sample whose training was more closely aligned with the realities of the job situations (see also: Weaver & Holmes, 1972). Hence, based on the limited evidence that is available, it would appear that the extent to which an employee's values and expectations are met does influence the desirability of going to work.

Pressures to Attend

While satisfaction with the job situation thus apparently represents a major influence on attendance motivation, the relationship is indeed not a perfect one. Other factors can be identified which serve to enhance attendance motivation, probably in an additive fashion (Garrison & Muchinsky, 1977; Ilgen & Hollenback, 1977; Nicholson et al., 1976). These variables are collectively termed here "pressures to attend" and represent the second major influence on the desire to come to work. These pressures may be economic, social, or personal in nature and are represented in Figure 1 by box 5. Specifically, at least five major pressures can be identified: 1) economic and market

conditions; 2) incentive/reward system; 3) work group norms; 4) personal work ethic; and 5) organizatonal commitment.

Economic and market conditions. The general state of the economy and the job market place constraints on one's ability to change jobs. Consequently, in times of high unemployment, there may be increased pressure to maintain a good attendance record for fear of losing one's job. Evidence suggests that there is a close inverse relationship between changes in unemployment levels within a given geographical region and subsequent absence rates (Behrend, Note 1; 1953; Crowther, 1957). Moreover, as the threat of layoff becomes even greater (e.g., when an employee's own employer begins layoffs), there is an even stronger decrease in absenteeism (Behrend, 1953).

However, when an employee knows that he or she is to be laid off (as opposed to a knowledge that layoffs are taking place in general), the situation is somewhat different. Specifically, Owens (1966) found that railway repair employees in a depressed industry who had been given notice of layoff because of shop closure had significantly higher absence rates prior to layoffs than a comparable group of employees who were not to be laid off. Owens suggests that, in addition to being a reflection of manifest anxiety, the increased absenteeism allowed employees time to find new positions. On the other hand, Hershey (1972) found no significant differences in absence rates between employees who were scheduled for layoffs and employees not so scheduled. Hershey argued that the subjects in his study were much in demand in the labor market and generally felt assured of finding suitable jobs. (Improved unemployment compensation in recent years may also have been a factor

in minimizing absenteeism among those to be laid off.)

Hence, economic and market factors may be largely related to attendance motivation and subsequent attendance through their effects on one's ability to change jobs. When general economic conditions are deteriorating, employees may be less likely to be absent for fear of reprisal. However, when the individual employee is to be laid off, absence rates are apparently influenced by one's perceptions of his or her ability to find alternate employment. Where such alternatives are readily available, no effect of impending layoff on absenteeism is noted; when such alternatives are not readily available, absence rates can be expected to increase as employees seek other employment.

Incentive/reward system. A primary factor capable of influencing attendance motivation is the nature of the incentive or reward system used by an organization. Several aspects of the reward system have been found to influence attendance behavior.

When perceptual measures of pay and pay satisfaction are used, mixed results are found between such measures and absenteeism. Specifically, three studies among various work samples found an inverse relationship between pay satisfaction or perceived pay equity and absenteeism (Patchen, 1960; Dittrich & Carrell, 1976; Smith, 1977), while six other studies did not find such a relationship (Hackman & Lawler, 1971; Newman, 1974; Nicholson et al., 1976; Lundquist, 1958; Garrison & Muchinsky, 1977; Nicholson et al., 1977). Three other studies found mixed results (Waters & Roach, 1971, 1973; Metzner & Mann, 1953). In short, it is difficult to draw any firm conclusions about pay and absenteeism from these perceptual measures.

In contrast, when actual wage rates or incentive systems have been studied, the results are somewhat more definitive. Lundquist (1958), Fried et al. (1972), Beatty and Beatty (1975), and Bernardin (1977) all found a direct inverse relationship between wage rate and absenteeism. The Bernardin study is particularly useful here because several potentially spurious variables (e.g., age, tenure) were partialled out of the analysis and because the results were cross-validated. Moreover, the Lundquist study employed multiple absence measures with similar results. Other studies cited in Yolles et al. (1975) point to the same conclusion. However, studies by Fried et al. (1972) and Weaver and Holmes (1972), both using the less rigorous "total days absent" measure of absenteeism, did not support this relationship. In view of the objective nature of actual wage rates as opposed to perceptual measures, it would appear that greater confidence can be placed in them than in the perceptual studies mentioned above. Hence we would expect increases in salary or wage rates to represent one source of pressure to attend, even where the employee did not like the task requirements of the job itself.

Several factors must be kept in mind when considering the role of incentives or reward systems in attendance motivation. First, the rewards offered by the organization must be seen as being both attainable and tied directly to attendance. As Lawler (1971) points out, many organizatons create reward systems that at least up to a point reward nonattendance. For instance, the practice of providing 12 days "sick leave" which employees lose if they fail to use only encourages people to be "sick" 12 days a year (see also: Morgan & Herman, 1976).

In this regard, Garrison and Muchinsky (1977) found a negative relationship between job satisfaction and absenteeism for employees absent without pay but no such relationship for employees absent with pay. Hence there must be an expectancy on the part of the employee that attendance (and not absenteeism) will lead to desirable rewards. Moreover, the employees must value the rewards available. If an employee would prefer a three-day weekend to having additional pay, there is little reason to expect that employee to be motivated to attend. On the other hand, an employee with a strong financial need (perhaps because of a large family) would be expected to attend if attendance was financially rewarded.

Oftentimes, a major portion of an employee's income is derived from overtime work. Consequently, the effects of such overtime on absenteeism is important to note. Two studies found that the availability of overtime work among both male and female employees was positively related to absenteeism (Gowler, 1969; Martin, 1971), while two other studies found no such relationship (Buck & Shimmin, 1959; Flanagan, 1974). One could argue here that the availability of overtime with premium pay can lead to an incentive system that rewards absenteeism, not attendance. That is, if an employee is absent during regular working hours (and possibly compensated for this by sick leave), he or she can then work overtime later in the week to make up for the production lost earlier due to absenteeism. Clearly, such a reward system would operate differently than it was intended to. However, in view of the fact that all four relevant studies used either weak absence measures or unduly small samples, the influence of overtime

availability on absenteeism must remain in the realm of conjecture pending further study.

Several attempts have been made to examine experimentally the effects of incentive or reward systems in work organizations. In one such study, Lawler and Hackman (1969; Scheflen, Lawler, & Hackman, 1971) experimentally introduced a bonus incentive plan to reward group attendance among a sample of part-time blue-collar employees. Two important findings emerged. First, the employees working under the bonus plan were found to have better attendance records than those not working under the plan. Moreover, the group that was allowed to participate in developing the bonus plan had higher attendance rates than the other experimental group that was given the bonus plan without an opportunity to participate in its design. (See also: Glaser, 1976.) Hence, both the adoption of a bonus incentive system to reward attendance and employee participation in the development of such a system appear to represent important influences on subsequent attendance.

A few studies have examined the role of punitive sanctions by management in controlling absenteeism. Results have been mixed. Two studies found that the use of stringent reporting and control procedures (e.g., keeping detailed attendance records, requiring medical verifications for reported illnesses, strict disciplinary measures) was related to lower absence rates (Baum & Youngblood, 1975; Seatter, 1961), while one found no such relationship (Rosen & Turner, 1971). Moreover, Buzzard and Liddell (Note 2) and Nicholson (1976) found that such controls did not influence average attendance rates, but did lead to fewer but longer absences. Such contradictory results concerning

the use of punitive sanctions suggests that more effective results may be achieved through more positive reward systems than through punishment.

One such positive approach is the use of a lottery reward system, where daily attendance qualifies employees for an opportunity to win some prize or bonus. This approach is closely tied to the behavior modification approach to employee motivation (Hamner & Hamner, 1976). Four studies report such lotteries can represent a successful vehicle for reducing absenteeism (Nord, 1970; Tjersland, 1972; Pedalino & Gamboa, 1974; Johnson & Wallin, Note 3). However, in view of the very small magnitude of the rewards available for good attendance, it is possible here that results were caused more by the "Hawthorne effect" than the lottery itself. As Locke (1977) points out, in at least one of the lottery experiments (Pedalino & Gamboa, 1974), absenteeism in the experimental group declined even before anyone in the group had been, or could have been, reinforced. In addition, more conventional behavior modification techniques for reducing absenteeism, reviewed in Hamner and Hamner (1976), show only moderate results over short periods of time.

Finally, other approaches to incentives and rewards relate to modifying the traditional work week. For instance, Golembiewski et al., (1974) and Robison (Note 7) both reported a moderate decline in absenteeism following the introduction of "flexitime," where hours worked can be altered somewhat to meet employee needs. Moreover, while Nord and Costigan (1973) found favorable results implementing a four-day (4-40) work week, Ivancevich (1974) did not. Since both of these studies

used similar samples, it is difficult to draw meaningful conclusions about the utility of such programs for reducing absenteeism.

Work group norms. Pressure for or against attendance can also emerge from one's colleagues in the form of work group norms. The potency of such norms is clearly established (Cartwright & Zander, 1968; Shaw, 1976). Where the norms of the group emphasize the importance of good attendance for the benefit of the group, increased attendance would be expected (Gibson, 1966). Recent findings by Ilgen and Hollenback (1977) support such a conclusion. This relationship would be expected to be particularly strong in groups with a high degree of work group cohesiveness (Whyte, 1969). In his job attractiveness model of employee motivation, Lawler (1971) points out that members of highly cohesive groups view coming to work to help one's co-workers as highly desirable; hence, job attendance is more attractive than absenteeism. In this regard, several uncontrolled field experiments have been carried out (summarized by Glaser, 1976) which found that the creation of "autonomous work groups" consistently led to increased work group cohesiveness and reduced absenteeism. It should be remembered, however, that work group norms can also have a detrimental impact on attendance where they support periodic absenteeism and punish perfect attendance.

Personal work ethic. A further influence on attendance motivation is the personal value system that individuals have (Rokeach, 1973). Recent research on the "work ethic" has shown considerable variation across employees in the extent to which they feel morally obligated to work. In particular, several investigations have noted a direct relationship between a strong work ethic and the propensity to

come to work (Goodale, 1973; Ilgen & Hollenback, 1977; Feldman, 1974; Searls et al., 1974). While more study is clearly in order here, it would appear that one major pressure to attend is the belief by individuals that work activity is an important aspect of life, almost irrespective of the nature of the job itself.

Organizational commitment. Finally, somewhat related to the notion of a personal work ethic is the concept of organizational commitment (Porter, Steers, Mowday, & Boulian, 1974). Commitment represents an agreement on the part of the employees with the goals and objectives of an organization and a willingness to work towards those goals. In short, if an employee firmly believes in what an organization is trying to achieve, he or she should be more motivated to attend and contribute toward those objectives. This motivation may exist even if the employee does not enjoy the actual tasks required by the job (e.g., a nurse's aide who may not like certain distasteful aspects of the job but who feels he or she is contributing to worthwhile public health goals). Support for this proposition can be found in Steers (1977) and Smith (1977), where commitment and attendance were found to be related for two separate samples of employees. On the other hand, where an employee's primary commitments lie elsewhere (e.g., to a hobby, family, home, or sports), less internal pressure would be exerted on the employee to attend (Morgan & Herman, 1976). This notion of competing commitments is an important one often overlooked in research on absenteeism.

Ability to Attend

A major weakness inherent in much of the current research on

absenteeism is the failure to account for (and partial out) involuntary absenteeism in the study of voluntary absenteeism. This failure has led to many contradictions in the research literature that may be explained by measurement error alone. [In fact, in a comparison of five absenteeism measures, Nicholson and Goodge (1976) found an average intercorrelation of $\underline{r}$ = .24 between measures, certainly not an encouraging coefficient.] Thus, if we are serious about studying absenteeism, a clear distinction must be made between voluntary and involuntary attendance behavior and both must necessarily be accounted for in model-building efforts.

Even if a person wants to come to work and has a high attendance motivation, there are many instances where such attendance is not possible; that is, where the individual does not have behavioral discretion or choice (Herman, 1973). At least three such unavoidable limitations on attendance behavior can be identified: 1) illness and accidents; 2) family responsibilities; and 3) transportation problems (box 7).

Illness and accidents. Poor health or injury clearly represents a primary cause of absenteeism (Hedges, 1973; Hill & Trist, 1955). Both illness and accidents are often associated with increased age (Baumgartel & Sobol, 1959; De La Mare & Sergean, 1961; Cooper & Payne, 1965; Martin, 1971). This influence of personal characteristics on ability to attend is shown in box 3 of Figure 1. Included in this category of health-related absences would also be problems of alcoholism and drug abuse as they inhibit attendance behavior. [See Yolles et al. (1975) for a review of the literature on health-related reasons for absenteeism.]

Family responsibilities. The second constraint on attendance

is often overlooked; namely, family responsibilities. As with health, this limitation as it relates to attendance is largely determined by the personal characteristics of the individual (sex, age, family size). In general, women as a group are absent more frequently than men (Covner, 1950; Hedges, 1973; Kerr et al., 1951; Kilbridge, 1961; Isambert-Jamati, 1962; Flanagan, 1974; Yolles et al., 1975). This finding is apparently linked, not only to the different types of jobs women typically hold compared to men, but also to the traditional family responsibilities assigned to women (that is, it is generally the wife or mother who cares for sick children). Support for this assumption comes from Naylor and Vincent (1959), Noland (1945), and Beatty and Beatty (1975). Hence, we would expect female absenteeism to increase with family size (Ilgen & Hollenback, 1977; Nicholson & Goodge, 1976; Isambert-Jamati, 1962).

It is interesting to note, however, that the available evidence suggests that the absenteeism rate for women declines throughout their work career (possibly because the family responsibilities associated with young children declines). For males, on the other hand, unavoidable absenteeism apparently increases with age (presumably because of health reasons), while avoidable absenteeism does not (Nicholson et al., 1977; Martin, 1971; Yolles et al., 1975). In any case, gender and family responsibilities do appear to place constraints on attendance behavior for some employees.

Transportation problems. Finally, some evidence suggests that difficulty in getting to work can at times influence actual attendance. This difficulty may take the form of travel distance from work

(Isambert-Jamati, 1962; Martin, 1971; Stockford, 1944), travel time to and from work (Knox, 1961), or weather conditions that impede traffic (Smith, 1977). Exceptions to this trend have been noted by Hill (1967) and Nicholson and Goodge (1976), who found no relationship between either travel distance or availability of public transportation and absence. In general, however, increased difficulty of getting to work due to transportation problems does seem to represent one possible impediment to attendance behavior for some employees, even when the individual is motivated to attend.

Cyclical Nature of Model

Finally, as noted in Figure 1, the model as presented is a process model. That is, the act of attendance or absenteeism often influences the subsequent job situation and subsequent pressures to attend in a cyclical fashion. For example, a superior attendance record is often used in organizations as one indicator of noteworthy job performance and readiness for promotion. Conversely, a high rate of absenteeism may adversely affect an employee's relationship with his or her supervisor and co-workers and result in changes in leadership style and co-worker relations. Also, widespread absenteeism may cause changes in company incentive/reward systems, including absence control policies. Other outcomes could be mentioned. The point here is that the model, as suggested, is a dynamic one, with employee attendance or absenteeism often leading to changes in the job situation which, in turn, influence subsequent attendance motivation.

CONCLUSION AND DISCUSSION

Our review of the research literature on employee absenteeism reveals a multiplicity of influences on the decision and ability to come to work. These influences emerge both from the individuals themselves (e.g., personal work ethic, demographic factors) and from the work environment (e.g., the job situation, incentive/reward systems, work group norms). Moreover, some of these influences are largely under the control of the employees (e.g., organizational commitment), while others are clearly beyond their control (e.g., health).

We have attempted to integrate the available evidence into a systematic conceptual model of attendance behavior. In essence, it is suggested that the nature of the job situation interacts with employee values and expectations to determine satisfaction with the job situation (Locke, 1976; Porter & Steers, 1973). This satisfaction combines in an additive fashion with various pressures to attend to determine an employee's level of attendance motivation. Moreover, it is noted that the relationship between attendance motivation and actual attendance is influenced by one's ability to attend, a situational constraint (Herman, 1973; Smith, 1977). Finally, the model notes that feedback from the results of actual attendance behavior can often influence subsequent perceptions of the job situation, pressures to attend, and attendance motivation. Hence, the cyclical nature of the model should not be overlooked.

The importance of the various factors in the model would be expected to vary somewhat across employees. That is, certain factors may facilitate attendance for some employees but not for others. For

instance, one employee may be intrinsically motivated to attend because of a challenging job; this individual may not feel any strong external pressures to attend because he or she likes the job itself. Another employee, however, may have a distasteful job (and not be intrinsically motivated) and yet may come to work because of other pressures (e.g., financial need). Both employees would attend, but for somewhat different reasons.

This interaction suggests a substitutability of influences up to a point for some variables. For instance, managers concerned with reducing absenteeism on monotonous jobs may change the incentive/reward system (that is, increase the attendance-reward contingencies) as a substitute for an unenriched work environment. In fact, it has been noted elsewhere that most successful applications of behavior modification (a manipulation of behavior-reward contingencies) have been carried out among employees holding unenriched jobs (Steers & Spencer, 1977). Support for this substitutability principle can be found in Ilgen and Hollenback (1977), who found some evidence that various factors influence attendance in an additive fashion, not a multiplicative one. Thus, the strength of attendance motivation would be expected to increase as more and more major influences, or pressures, emerged.

In addition, differences can be found in the manner in which the various influences on attendance affect such behavior. That is, a few of the major variables are apparently fairly <u>directly</u> related to desire to attend (if not actual attendance). For instance, highly satisfied employees would probably want strongly to attend, while

highly dissatisfied employees would probably want strongly not to attend. On the other hand, certain other factors appear to serve a gatekeeper function and do not covary directly with attendance. The most prominent gatekeeper variable is one's health. While sick employees typically do not come to work, it does not necessarily follow that healthy employees will attend. Instead, other factors (e.g., attendance motivation) serve to influence a healthy person's attendance behavior.

The more than one hundred studies reviewed here are consistent with the proposed model. However, due to the bivariate correlational nature of the majority of the studies, most findings are not sufficient to validate the model. The few exceptions to this (i.e., the more comprehensive studies) do appear to support various aspects of the model. Even so, the proposed model of employee attendance must be considered hypothetical until such time that more rigorous validation studies can be carried out. Its elaboration here is meant to provide some specific hypotheses suitable for testing.

Implications for Future Research

Our review of the available literature on absenteeism points to several areas in which future research could make substantial contributions toward a better understanding of attendance behavior.

1. As noted earlier, our conceptual model rests largely on an integration of somewhat fragmentary research findings. Very few comprehensive multivariate studies of absenteeism are to be found. Moreover, very few studies exist which attempt to explore causal sequences

among variables. An earlier review suggested the need for more comprehensive process models of withdrawal behavior, instead of the continued proliferation of bivariate correlational analyses (Porter & Steers, 1973). The conceptual model presented here represents one such attempt. However, there exists a significant need to test such a model using longitudinal and experimental methods.

In particular, efforts should be made to examine the nature of the relationship between satisfaction and various pressures to attend as they jointly influence attendance motivation. Do such variables influence attendance motivation in an additive or multiplicative fashion? Moreover, research is needed concerning the interaction of attendance motivation and ability to attend as they determine actual attendance. How important are the various constraints on attendance in moderating the relationship between attendance motivation and actual attendance? Do additional constraints exist which impinge on one's ability to come to work? Finally, and perhaps most important, comprehensive research designs are needed to estimate the relative importance of the many variables identified in the model as each influences attendance. For example, is an organizaton's incentive/reward system more influential than prevailing economic conditions or than satisfaction? How much variance exists across individuals concerning the relative importance of these variables? Answers to such questions as these would advance considerably our understanding of the processes leading up to attendance behavior.

2. Moreover, questions need to be raised concerning the possible existence of other variables which may influence absenteeism but have

yet to be studied systematically. One such example is the problem of multiple commitments. That is, what effect does a strong commitment to one's family or to a hobby (instead of to the organization) have on attendance motivation? Similarly, what effect does psychosomatic illness, possibly brought on by role pressures, have on actual attendance? Further work of a more rigorous nature needs to be carried out concerning the sustained impact of behavior modification on employee attendance. The influence of habitual behavior as it relates to attendance should also be examined. Finally, considerably more could be learned about the manner in which extraorganizational factors (e.g., family responsbilities, pressures, and norms; friendship groups; etc.) influence the decision to go to work.

3. Some attention needs to be focused on the operationalization and conceptualization of absenteeism measures. For example, there is some disagreement concerning the relative preference for measures of absenteeism or measures of attendance. Latham and Pursell (1975, 1977) argue that measuring employee attendance (instead of absenteeism) leads to more stable measures over time and that the concept of attendance behavior is more appealing theoretically. Both of these assertions have been questioned by Ilgen (1977), however. Moreover, as noted by Nicholson and Goodge (1976), various measures of absenteeism (total days lost, number of instances of absences, medically sanctioned absences, etc.) do not co-vary. Hence, serious problems of interpretation emerge in attempts to compare results across various absenteeism studies. This problem is compounded by the reluctance of some investigators to specify clearly how absenteeism was operationalized or measured in their own studies. Certainly, more effort is needed to insure that future research

employs comparable (or at least multiple) measures of absenteeism so that greater integration of the various findings is possible. Moreover, it would be highly desirable if future studies reported the absence control policies and sanctions that exist in the organization under study (e.g., sick leave policy, medical certification of absences) since such controls may have an important influence on study results.

4. Reported test-retest reliabilities of various absence measures have been unacceptably low (Muchinsky, 1977). For instance, Chadwick-Jones, Brown, Nicholson, and Sheppard (1971) report reliabilities ranging from .00 to .43 for various measures of absenteeism. Two interpretations of these data are possible. On the one hand, it can be argued that such low reliabilities clearly raise doubts as to the utility of the reported findings. On the other hand, it can also be argued that attendance behavior over time is simply not a reliable phenomenon. Indeed, the model proposed here suggests several reasons why such behavior should not be stable over time. While low test-retest reliabilities of absence measures increases the difficulty of dealing with such behavior both from an empirical and a managerial standpoint, such instability may in fact be a reflection of reality that must be dealt with in future studies on the topic.

5. Throughout the literature on employee absenteeism, there is a prevailing assumption that all absenteeism is detrimental to organizational well-being. It is possible, however, that some absenteeism may in fact be "healthy" for organizations in that such behavior can allow for temporary escape from stressful situations (perhaps through

the provision of personal days off), thereby potentially contributing to the mental health of employees. In fact, rigid efforts to insure perfect attendance (such as through behavior modification) may lead to unintended and detrimental consequences on the job, such as reduced product quality, increased accidents, and so forth. Hence, it would be useful if future studies could examine the extent to which changes in absence rates do or do not have adverse consequences for other aspects of organizational effectiveness. If reduced absenteeism is accomplished at the expense of product quality, accident rate, strike activity, or employee mental health, serious questions must be raised concerning the desirability of improving such attendance.

6. To suggest that more experimental (as opposed to correlational) studies are in order is commonplace. In fact, there have been a number of experimental studies of absenteeism, particularly as it relates to job redesign. However, many of these studies used multiple interventions simultaneously (Glaser, 1976), thus contaminating treatment effects. Moreover, the majority of experimental studies reviewed here failed to use matched control groups, and many failed to report the nature of the absence measures employed. Hopefully, future experimental studies will provide for a more rigorous test of the hypotheses by employing more stringent (and controlled) experimental designs, while clearly identifying and isolating the treatments. Confounding of variables remains a needless hallmark of studies of employee absenteeism. Moreover, in view of the inconsistency (and possible instability) of most measures of absenteeism, it would be highly desirable to cross-validate results. Recent evidence by Garrison and

Muchinsky (1977) and Waters and Roach (1973) amply demonstrates the possible misinterpretation of results that can easily occur in the absence of cross-validation or replication.

7. In general, absenteeism studies have focused on blue-collar or clerical employees and have ignored managerial personnel either because of a lack of data or because absenteeism statistics that are available suggest that little problem exists with managers. However, in view of the increased autonomy that managers possess (which makes short absences from work relatively easy), it may be useful to re-examine de facto absenteeism among such employees. This re-examination really suggests the need to examine the productivity of such employees. When an assembly line worker is absent (or is present but not actually working), it is quite noticeable. However, when a manager is "in conference" or "working privately," questions must be raised concerning the extent to which he or she is really present on the job, psychologically as well as physically. Lenz (cited in Yolles et al., 1975) argues that one of the prerogatives of managers is the right to be absent. "It is the right to sit around the office and talk, the right to take a slightly longer lunch "hour" than anyone else, the right to run personal errands during the day while blue collar workers must wait until Saturday (p. 17)." In short, it would be useful to examine more closely the active participation levels of managers (and other employees), perhaps employing somewhat different measures of absenteeism.

In conclusion, the proposed model of employee attendance identifies several major categories of factors that have been shown to influence

attendance behavior. Moreover, the model specifies, or hypothesizes, how these various factors fit together to influence the decision to come to work. Throughout, the model emphasizes the psychological processes underlying attendance behavior and in this sense is felt to be superior to the traditional bivariate correlational studies that proliferate on the topic. It remains the task of future research to extend our knowledge on this important topic and to clarify further the nature of the relationships among variables as they jointly influence an employee's desire and intent to come to work. It is hoped that the model presented here represents one useful step toward a better understanding of this process.

REFERENCE NOTES

1. Behrend, H. Absence under full employment. Monograph A3, University of Birmingham Studies in Economics and Society, 1951.

2. Buzzard, R. B., & Liddell, F. D. K. Coalminers attendance at work. NCB Medical Service, Medical Research Memorandum No. 3, 1958.

3. Johnson, R. D., & Wallin, J. A. Employee attendance: An operant conditioning intervention in a field setting. Paper presented at American Psychological Association annual meeting, Washington, D. C., 1976.

4. Ketchum, L. D. Paper presented at the American Association for the Advancement of Science symposium on "Humanizing of Work," Philadelphia, December 1972.

5. Oster, A. Attitudes as mediators of the effects of participation in an industrial setting. Unpublished doctoral dissertation, Wayne State University, 1970.

6. Rhodes, S. R., & Steers, R. M. Summary tables of studies of employee absenteeism. Technical Report No. 13, University of Oregon, 1977. This report is available from the second author at the Graduate School of Management and Business, University of Oregon, Eugene, OR 97403.

7. Robison, D. Alternate work patterns: Changing approaches to work scheduling. Report of a conference sponsored by National Center for Productivity and Quality of Working Life and the Work in America Institute, Inc., June 2, 1976, Plaza Hotel, New York.

REFERENCES

Acton Society Trust. Size and morale. London: AST, 1953.

Argyle, M., Gardner, G., & Cioffi, I. Supervisory methods related to productivity, absenteeism and labor turnover. Human Relations, 1958, 11, 23-40.

Baum, J. F., & Youngblood, S. A. Impact of an organizational control policy on absenteeism, performance, and satisfaction. Journal of Applied Psychology, 1975, 60, 688-694.

Baumgartel, H., & Sobol, R. Background and organizational factors in absenteeism. Personnel Psychology, 1959, 12, 431-443.

Beatty, R. W., & Beatty, J. R. Longitudinal study of absenteeism of hard-core unemployed. Psychological Reports, 1975, 36, 395-406.

Beer, M., & Huse, E. F. A systems approach to organizational development. Journal of Applied Behavioral Science, 1972, 8, 79-109.

Behrend, H. Absence and labour turnover in a changing economic climate. Occupational Psychology, 1953, 27, 69-79.

Bernardin, H. J. The relationship of personality variables to organizational withdrawal. Personnel Psychology, 1977, 30, 17-27.

Blalock, H. M. Causal inferences in non-experimental research. Chapel Hill, N. C.: University of North Carolina Press, 1961.

Bragg, J. E., & Andrews, I. R. Participative decision-making: An experimental study in a hospital. Journal of Applied Behavioral Science, 1973, 9, 727-736.

Buck, L., & Shimmin, S. Overtime and financial responsibility. Occupational Psychology, 1959, 33, 137-148.

Burke, J., & Wilcox, D. S. Absenteeism and turnover among female telephone operators. Personnel Psychology, 1972, 25, 639-648.

Cartwright, D., & Zander, A. Group dynamics. New York: Harper & Row, 1968.

Chadwick-Jones, J. K., Brown, C. A., Nicholson, N., & Sheppard, C. Absence measures: Their reliability and stability in an industrial setting. Personnel Psychology, 1971, 24, 463-470.

Cooper, R., & Payne, R. Age and absence: A longitudinal study in three firms. Occupational Psychology, 1965, 39, 31-43.

Copenhaver, J. R. Training, job enrichment, reducing costs. Hospitals, 1973, 47(3), 118, 122, 126.

Covner, B. J. Management factors affecting absenteeism. Harvard Business Review, 1950, 28, 42-48.

Crowther, J. Absence and turnover in the divisions of one company--1950-55. Occupational Psychology, 1957, 31, 256-270.

Davis, L. E., & Valfer, E. S. Studies in supervisory job design. Human Relations, 1966, 19, 339-352.

de la Mare, G., & Sergean, R. Two methods of studying changes in absence with age. Occupational Psychology, 1961, 35, 245-252.

Dittrich, J. E., & Carrel, M. R. Dimensions of organizational fairness as predictors of job satisfaction, absence and turnover. Academy of Management Proceedings '76. Thirty-Sixth Annual Meeting of the Academy of Management, Kansas City, Missouri, August 11-14, 1976.

Feldman, J. Race, economic class, and the intention to work: Some normative and attitudinal correlates. Journal of Applied Psychology, 1974, 59, 179-186.

Flanagan, R. J., Strauss, G., & Ulman, L. Worker discontent and work place behavior. Industrial Relations, 1974, 13, 101-123.

Ford, R. N. Motivation through the work itself. New York: American Management Association, 1969.

Frank, L. L., & Hackman, J. R. A failure of job enrichment: The case of the change that wasn't. Journal of Applied Behavioral Science, 1975, 11, 413-436.

Fried, J., Wertman, M., & Davis, M. Man-machine interaction and absenteeism. Journal of Applied Psychology, 1972, 56, 428-429.

Garrison, K. R., & Muchinsky, R. M. Attitudinal and biographical predictors of incidental absenteeism. Journal of Vocational Behavior, 1977, 10, 221-230.

Gibson, J. O. Toward a conceptualization of absence behavior of personnel in organizations. Administrative Science Quarterly, 1966, 11, 107-133.

Glaser, E. M. Productivity gains through worklife improvement. New York: The Psychological Corporation, 1976.

Golembiewski, R. T., Hilles, R., & Kagno, M. S. A longitudinal study of flex-time effects: Some consequences of an OD structural intervention. Journal of Applied Behavioral Science, 1974, 10, 503-532.

Gomez, L. R., & Mussie, S. J. An application of job enrichment in a civil service setting: A demonstration study. Public Personnel Management, 1975, 4, 49-54.

Goodale, J. G. Effects of personal background and training on work values of the hard-core unemployed. Journal of Applied Psychology, 1973, 57, 1-9.

Gowler, D. Determinants of the supply of labour to the firm. Journal of Management Studies, 1969, 6, 73-95.

Hackman, J. R., & Lawler, E. E., III. Employee reactions to job characteristics. Journal of Applied Psychology Monograph, 1971, 55, 259-286.

Hackman, J. R., & Oldham, G. R. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Performance, 1976, 16, 250-279.

Hackman, J. R., Oldham, G. R., Janson, R., & Purdy, K. A new strategy for job enrichment. California Management Review, 1975, 17, 57-71.

Hautaluoma, J. E., & Gavin, J. F. Effects of organizational diagnosis and intervention on blue-collar "blues." Journal of Applied Behavioral Science, 1975, 11, 475-498.

Hamner, W. C., & Hamner, E. P. Behavior modification on the bottom line. Organizational Dynamics, 1976, 4(4), 2-21.

Hedges, J. N. Absence from work-A look at some national data. Monthly Labor Review, 1973, 96, 24-31.

Herman, J. B. Are situational contingencies limiting job attitude-job performance relationships? Organizational Behavior and Human Performance, 1973, 10, 208-224.

Hershey, R. Effects of anticipated job loss on employee behavior. Journal of Applied Psychology, 1972, 56, 273-274.

Hewitt, D., & Parfitt, J. A note on working morale and size of group. Occupational Psychology, 1953, 27, 38-42.

Hill, J. M., & Trist, E. L. Changes in accidents and other absences with length of service. Human Relations, 1955, 8, 121-152.

Hill, M. Who stays home? New Society, 1967, 9, 459-460.

Hrebiniak, L. G., & Roteman, M. R. A study of the relationship between need satisfaction and absenteeism among managerial personnel. Journal of Applied Psychology, 1973, 58, 381-383.

Ilgen, D. R. Attendance behavior: A re-evaluation of Latham and Pursell's conclusion. Journal of Applied Psychology, 1977, 62, 230-233.

Ilgen, D. R., & Hollenback, J. H. The role of job satisfaction in absence behavior. Organizational Behavior and Human Performance, 1977, 19, 148-161.

Indik, B. P. Organization size and member participation. Human Relations, 1965, 18, 339-350.

Indik, B., & Seashore, S. Effects of organization size on member attitudes and behavior. Ann Arbor: University of Michigan, Survey Research Center of the Institute for Social Research, 1961.

Ingham, G. Size of industrial organization and worker behavior. Cambridge: Cambridge University Press, 1970.

Isambert-Jamati, V. Absenteeism among women workers in industry. International Labour Review, 1962, 85, 248-261.

Ivancevich, J. M. Effects of the shorter workweek on selected satisfaction and performance measures. Journal of Applied Psychology, 1974, 59, 717-721.

Kerr, W., Koppelmeier, G., & Sullivan, J. Absenteeism, turnover and morale in a metals fabrication factory. Occupational Psychology, 1951, 25, 50-55.

Kilbridge, M. Turnover, absence, and transfer rates as indicators of employee dissatisfaction with repetitive work. Industrial and Labor Relations Review, 1961, 15, 21-32.

King, A. S. Expectation effects in organizational change. Administrative Science Quarterly, 1974, 19, 221-230.

Knox, J. B. Absenteeism and turnover in an Argentine factory. American Sociological Review, 1961, 26, 424-428.

Latham, G. P., & Pursell, E. D. Measuring absenteeism from the opposite side of the coin. Journal of Applied Psychology, 1975, 60, 369-371.

Latham, G. P., & Pursell, E. D. Measuring attendance: A reply to Ilgen. Journal of Applied Psychology, 1977, 62, 234-236.

Lawler, E. E., III. Pay and organizational effectiveness. New York: McGraw-Hill, 1971.

Lawler, E. E., III, & Hackman, J. R. Impact of employee participation in the development of pay incentive plans: A field experiment. Journal of Applied Psychology, 1969, 53, 467-471.

Lawler, E. E., III, Hackman, J. R., & Kaufman, S. Effects of job redesign on attendance. Journal of Applied Social Psychology, 1973, 3, 39-48.

Locke, E. A. Toward a theory of task motivation and incentives. Organizational Behavior and Human Performance, 1968, 3, 157-189.

Locke, E. A. The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976. Pp. 1297-1349.

Locke, E. A. The myths of behavior mod in organizations. Academy of Management Review, 1977, 2, 543-553.

Locke, E. A., Sirota, D., & Wolfson, A. D. An experimental case study of the success and failures of job enrichment in a government agency. Journal of Applied Psychology, 1976, 61, 701-711.

Lundquist, A. Absenteeism and job turnover as a consequence of unfavorable job adjustment. Acta Sociologica, 1958, 3, 119-131.

Lyons, T. F. Turnover and absenteeism: A review of relationships and shared correlates. Personnel Psychology, 1972, 25, 271-281.

Malone, E. L. The non-linear systems experiment in participative management. Journal of Business, 1975, 48, 52-64.

Martin, J. Some aspects of absence in a light engineering factory. Occupational Psychology, 1971, 45, 77-91.

Melbin, M. Organizational practice and individual behavior: Absenteeism among psychiatric aides. American Sociological Review, 1961, 26, 14-23.

Metzner, H., & Mann, F. Employee attitudes and absences. Personnel Psychology, 1953, 6, 467-485.

Miles, R. H., & Perreault, W. D. Organizational role conflict: Its antecedents and consequences. Organizational Behavior and Human Performance, 1976, 17, 19-44.

Mirvis, P. H., & Lawler, E. E., III. Measuring the financial impact of employee attitudes. Journal of Applied Psychology, 1977, 62, 1-8.

Morgan, L. G., & Herman, J. B. Perceived consequences of absenteeism. Journal of Applied Psychology, 1976, 61, 738-742.

Muchinsky, P. M. Employee absenteeism: A review of the literature. Journal of Vocational Behavior, 1977, 10, 316-340.

Naylor, J. E., & Vincent, N. L. Predicting female absenteeism. Personnel Psychology, 1959, 12, 81-84.

Newman, J. E. Predicting absenteeism and turnover. Journal of Applied Psychology, 1974, 59, 610-615.

Nicholson, N. Management santions and absence control. Human Relations, 1976, 29, 139-151.

Nicholson, N., Brown, C. A., & Chadwick-Jones, J. K. Absence from work and job satisfaction. Journal of Applied Psychology, 1976, 61, 728-737.

Nicholson, N., Brown, C. A., & Chadwick-Jones, J. K. Absence from work and personal characteristics. Journal of Applied Psychology, 1977, 62, 319-327.

Nicholson, N., & Goodge, P. M. The influence of social, organizational and biographical factors on female absence. Journal of Management Studies, 1976, 13, 234-254.

Nicholson, N., Wall, T., & Lischeron, J. The predictability of absence and propensity to leave from employees' job satisfaction and attitudes toward influence in decision-making. Human Relations, 1977, 30, 499-514.

Noland, E. W. Attitudes and industrial absenteeism: A statistical appraisal. American Sociological Review, 1945, 10, 503-510.

Nord, W. Improving attendance through rewards. Personnel Administration, November 1970, 37-41.

Nord, W. R., & Costigan, R. Worker adjustment to the four-day week: A longitudinal study. Journal of Applied Psychology, 1973, 58, 60-661.

Owens, A. C. Sick leave among railwaymen threatened by redundancy: A pilot study. Occupational Psychology, 1966, 40, 43-52.

Patchen, M. Absence and employee feelings about fair treatment. Personnel Psychology, 1960, 13, 349-360.

Pedalino, E., & Gamboa, V. V. Behavior modification and absenteeism: Intervention in one industrial setting. Journal of Applied Psychology, 1974, 59, 694-698.

Pocock, S. J., Sergean, R., & Taylor, P. J. Absence of continuous three-shift workers. Occupational Psychology, 1972, 46, 7-13.

Porter, L. W., & Lawler, E. E., III. Properties of organization structure in relation to job attitudes and job behavior. Psychological Bulletin, 1965, 64, 23-51.

Porter, L. W., & Lawler, E. E. Managerial attitudes and performance. Homewood, Ill.: Irwin, 1968.

Porter, L. W., & Steers, R. M. Organizational, work, and personal factors in employee turnover and absenteeism. Psychological Bulletin, 1973, 80, 151-176.

Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. Organizational commitment, job satisfaction, and turnover among psychiatric technicians. Journal of Applied Psychology, 1974, 59, 603-609.

Revans, R. Human relations, management and size. In E. M. Hugh-Jones (Ed.), Human Relations and Modern Management. Amsterdam: North-Holland Publishing, 1958.

Rokeach, M. The nature of human values. New York: The Free Press, 1973.

Rosen, H., & Turner, J. Effectiveness of two orientation approaches in hard-core unemployed turnover and absenteeism. Journal of Applied Psychology, 1971, 55, 296-301.

Scheflen, K. C., Lawler, E. E., III, & Hackman, J. R. Long-term impact of employee participation in the development of pay incentive plans: A field experiment revisited. Journal of Applied Psychology, 1971, 55, 182-186.

Searls, D. J., Braucht, G. N., & Miskimins, R. W. Work values and the chronically unemployed. Journal of Applied Psychology, 1974, 59, 93-95.

Seatter, W. C. More effective control of absenteeism. Personnel, 1961, 38, 16-29.

Shaw, M. E. Group Dynamics. New York: McGraw-Hill, 1976.

Sinha, A. K. P. Manifest anxiety affecting industrial absenteeism. Psychological Reports, 1963, 13, 258.

Smith, A. L. Oldsmobile absenteeism/turnover control program. GM Personnel Development Bulletin, February 1972.

Smith, C. G., & Jones, G. The role of the interaction-influence system in a planned organizational change. In A. S. Tannebaum (Ed.), Control in organizations. New York: McGraw-Hill, 1968.

Smith, F. J. Work attitudes as predictors of specific day attendance. Journal of Applied Psychology, 1977, 62, 16-19.

Spiegel, A. H. How outsiders overhauled a public agency. Harvard Business Review, 1975, 53(1), 116-124.

Steers, R. M. Antecedents and outcomes of organizational commitment. Administrative Science Quarterly, 1977, 22, 46-56.

Steers, R. M., & Spencer, D. G. The role of achievement motivation in job design. Journal of Applied Psychology, 1977, 4, 472-479.

Stockford, L. O. Chronic absenteeism and good attendance. Personnel Journal, 1944, 23, 202-207.

Stogdill, R. M. Handbook of leadership. New York: Free Press, 1974.

Tjersland, T. Changing worker behavior. New York: Manpower Laboratory, American Telephone and Telegraph, December, 1972.

Trist, E. L., Higgins, G., Murry, H., & Pollack, A. G. Organizational Choice. London: Tavistock Publications, 1965.

Turner, A. N., & Lawrence, P. R. Industrial jobs and the worker. Boston: Harvard University, Graduate School of Business Administration, 1965.

Vroom, V. Work and Motivation. New York: Wiley, 1964.

Waters, L. K., & Roach, D. Relationship between job attitudes and two forms of withdrawal from the work situation. Journal of Applied Psychology, 1971, 55, 92-94.

Waters, L. K., & Roach, D. Job attitudes as predictors of termination and absenteeism: Consistency over time and across organiztions. Journal of Applied Psychology, 1973, 57, 341-342.

Weaver, C. N., & Holmes, S. L. On the use of sick leave by female employees. Personnel Administration and Public Personnel Review, 1972, 1(2), 46-50.

Whyte, W. F. Organizational behavior. Homewood, Ill.: Irwin, 1969.

World of Work Report. Rising absenteeism in Sweden attributed to generous sick pay. 1977, 2(1), 12.

Yolles, S. F., Carone, P. A., & Krinsky, L. W. Absenteeism in industry. Springfield, Ill.: Charles C. Thomas, 1975.

FOOTNOTES

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1. It should be noted that several of the job situation variables shown in box 1 may interact with one another. For instance, job scope may influence role stress which then may affect experienced satisfaction. However, in the interest of brevity, these job-related variables have been grouped together so primary emphasis can be placed on how such variables influence subsequent attendance motivation and behavior. Since attendance behavior is our primary concern here, these variables are relevant only as they jointly influence those factors which affect attendance.

2. The pervasive influence of personal characteristics on employee absenteeism, as shown in Figure 1, is evidenced not only by their effects on values and job expectations (box 2), but also on ability to attend (box 7).

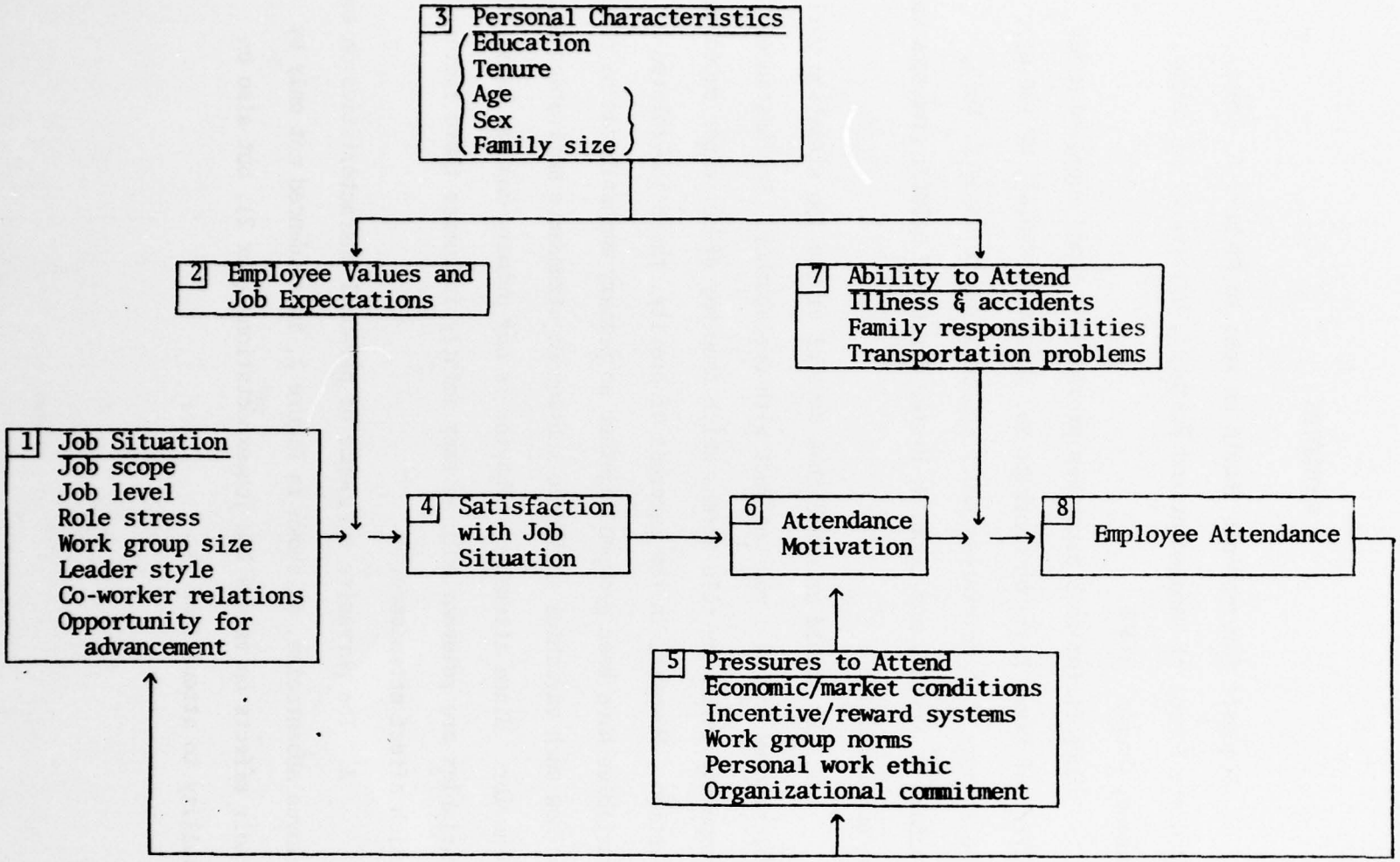

Fig. 1 A Model of Employee Attendance

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